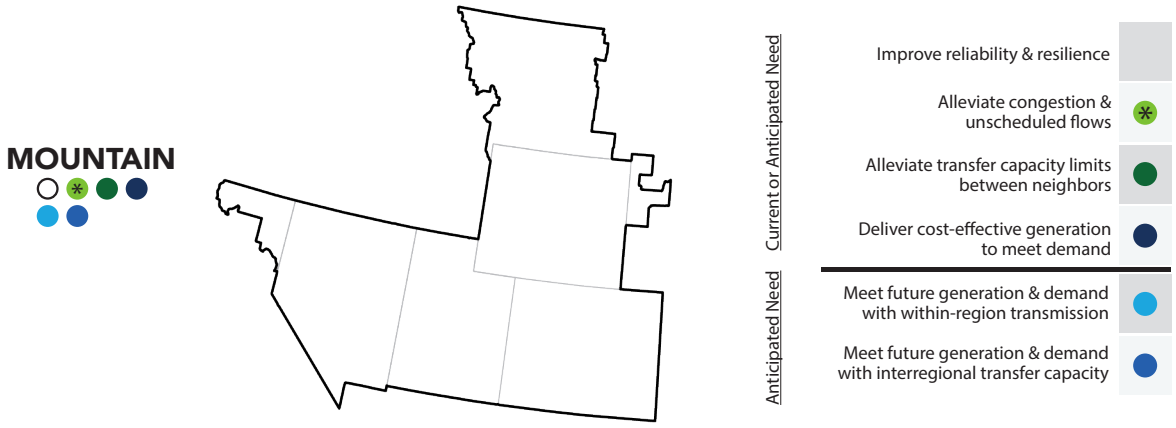
GRID DEPLOYMENT OFFICE

FACT SHEET

2023 NATIONAL TRANSMISSION NEEDS STUDY

MOUNTAIN REGION

The U.S. Department of Energy's Grid Deployment Office (GDO) released the National Transmission Needs Study ("Needs Study") in October 2023. The Needs Study is the Department's **triennial state of the grid** report. The Needs Study identifies transmission needs and provides information about current and anticipated future capacity constraints and congestion on the Nation's electric transmission grid. In this fact sheet, we highlight the transmission needs of the Mountain region. The Needs Study provides further detail on the benefits of transmission that could be realized throughout the country.



**Wholesale market price data is limited for non-RTO/ISO regions. Absence of data does not necessarily indicate that there is no need for transmission to alleviate congestion and/or unscheduled flows in non-RTO/ISO region.*

FINDINGS OF TRANSMISSION NEED IN THE MOUNTAIN REGION

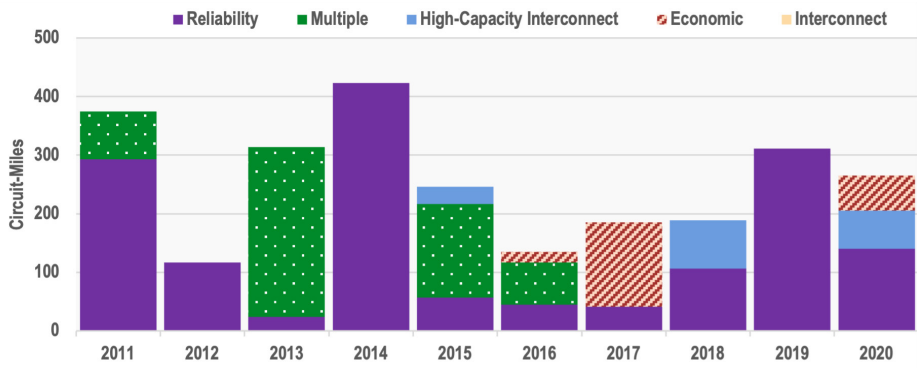
- **Alleviate congestion and unscheduled flows.** Unscheduled flows in the Mountain region persist, specifically along Colorado's west, south, and north borders, and high congestion values exist within the Mountain region. Additional transmission deployment would help alleviate these needs.
- **Alleviate transfer capacity limits between the Mountain region and its neighbor.** High congestion value of interregional transmission from 2012–2020 exists between the Mountain and Plains region, ranging from $8/MWh to $21/MWh. Similarly high congestion values of transmission exist between the Mountain and California ($14/MWh) and Northwest ($14/MWh) regions. A high congestion value indicates that increased transmission between the regions would reduce system congestion and constraints.
- **Deliver cost-effective generation to meet demand.** Generation interconnection queues within the Mountain region contain a high number of clean generation projects and county- and state-level renewable energy goals are anticipated to drive future renewable resource development. Transmission buildout would help to accommodate cost-effective resource integration.
- **Meet future generation and demand with additional within-region transmission.** It is anticipated that the Mountain region will need between 2.5 and 4.5 TW-miles of within-region transmission in 2035 (median 3.1 TW-miles, a 90% increase relative to the 2020 system) to meet moderate load growth and high clean energy growth future scenarios.
- **Meet future generation and demand with additional interregional transfer capacity.** It is anticipated that the Mountain region will need between 2.7 and 4.4 GW of additional transfer capacity with the Northwest region in 2035 (median of 3.3 GW, a 26% increase relative to the 2020 system) to meet moderate load growth and high clean energy growth future scenarios. Smaller additional transfers between the Mountain and the Southwest (median value of 1.7 GW), California (median value of 1.9 GW), and the Plains (median value of 2.6 GW) regions may also be required.

HELPFUL LINKS

- **Read the full study at www.energy.gov/gdo/national-transmission-needs-study**
- **Contact GDO with additional questions: transmission@hq.doe.gov**

FINDINGS AT A GLANCE

Circuit-miles of new or rebuilt transmission lines (≥100kV) energized between 2011–2020 by project driver.

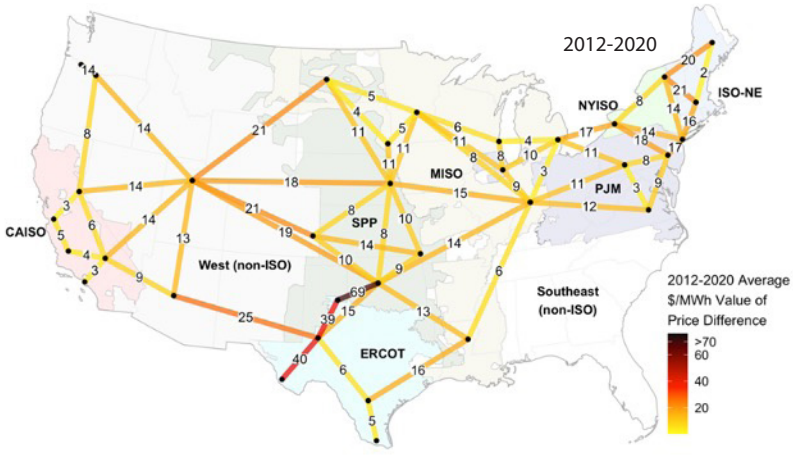


Transmission projects energized over the last decade in the Mountain region **addressed a diversity of needs**, including **reliability** concerns and to specifically realize **production cost savings**.

Wholesale market price differentials demonstrate the **highest value of new interregional transmission** exists **between the Mountain and Plains region**.

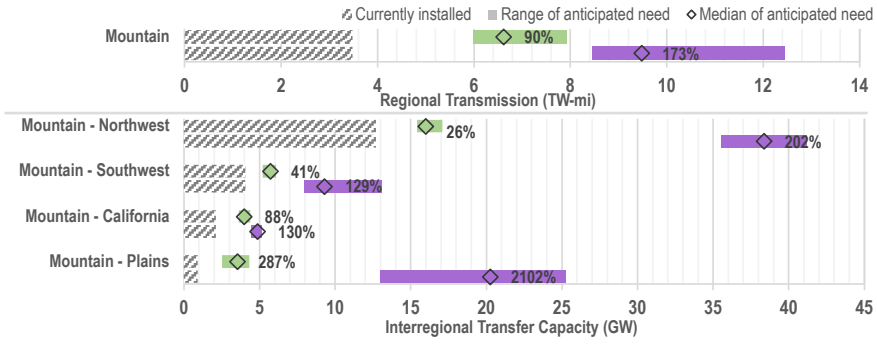
The average marginal value of transmission between the Mountain and Plains regions from 2012–2020 is equal to $15/MWh.

Congestion value of hypothetical transmission links between select zonal nodes within and across regions.



Note: Wholesale market price data is limited for non-RTO/ISO regions. Absence of data does not necessarily indicate that there is no need for transmission to alleviate congestion and/or unscheduled flows in non-RTO/ISO regions. Findings organized using geographic region nomenclature as described in the Needs Study.
Source: D. Millstein, et al. (2022)

Within-region transmission and interregional transfer capacity need for Mountain in 2035
Range of new transmission need for future scenarios with moderate load and high clean energy growth (green, top for each region) and high load and high clean energy growth (purple, bottom). Median % growth compared to 2020 system shown.



Capacity expansion modeling results for the Moderate/High scenario group suggest an anticipated need of **3.1 TW miles of new within-region transmission by 2035** (90% growth relative to 2020) and **3.3 GW of new interregional transfer capacity with the Northwest region by 2035** (26% growth relative to 2020).

Median 2035 capacity expansion modeling results for Moderate/High scenario group.

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